

**Minutes of Meeting #04 of RTCA SC-209 Working Group #1
For The Development & Maintenance of the Mode-S MOPS**

<http://adsb.tc.faa.gov/SC209.htm>

Meeting #4 of Working Group #1 of RTCA/SC-209 was called to order by Co-Chair Tom Pagano at 9:00am EDT, 4 December 2007, at the RTCA Headquarters in Washington DC. Mr. Pagano then welcomed all attendees and asked that each attendee introduce themselves and their organization. The attendees for all or part of the meeting included the following:

Mark Annee, U.S. Navy	Andrew Leone, FAA Tech Center
John Berglund, U.S. Navy	Showkat Osman, Honeywell (phone)
Robert Clarke, Alion Sciences	Tom Pagano, FAA Tech Center – AJP-653
Robert Duffer, FAA	Robert Saffell, Rockwell Collins
Gary Furr, Engility Corp., FAATC–AJP-653	Bill Thedford, Consultant, USAF
David Kerr, Engility Corp, FAATC	Nolan Van Foeken, Garmin International

1. Agenda Item #1

- 1.1 Robert Duffer, the Designated Federal Official, was with us again during this meeting and Richard Jennings of AIR-130, sent his regrets for not being able to attend because of a mandatory training class he had to attend.
- 1.2 Tom Pagano led a brief discussion regarding the status of both DO-181D and ED-73C and addressed the fact that WG-49 was having a meeting in Paris this week on 4+5 December to cover some of the Working Papers on the suggested SARPs and Figure changes that they were not able to cover during their November meeting in Cologne.

2. Agenda Item #2

- 2.1 With the proposed meeting Agenda displayed as Working Paper ModeS-WP04-01, Mr. Pagano asked if there were any suggested additions or changes to the Agenda for this meeting. Gary Furr pointed out that several additional Working Papers had been submitted since the revised Agenda was posted on the SC-209 web page for this meeting. The Agenda was revised and was posted on the web page as ModeS-WP04-01R1. Mr. Pagano declared that the Agenda was accepted with these changes, and began to progress on the Agenda as offered to the Working Group.

3. Agenda Item #3

- 3.1 Mr. Pagano referred to Agenda Item #3 to discuss the Minutes of SC-209 Working Group #1, Meeting #3, which was held at the facilities of Engility Corporation on 2 – 4 October 2007, and presented to this meeting as Working Paper ModeS-WP04-02. There were no issues found with the actual summary. The Working Group did start going over the Action Items at the end of the Minutes during the review. Tom Pagano agreed to call Roland Mallwitz to discuss the status of Action Item 7-4 with regard to the validation of declared on-the-ground status. According to the Action Item, Roland was to present a paper to the ICAO ASP in October, but we don't show any such paper having been presented or discussed. The Minutes of SC-209 Working Group #1, Meeting #3 were accepted by the Working Group as presented in Working Paper ModeS-WP04-02. The updated Action Item list will be included in this Summary below.
- 3.2 The Working Group had a short discussion with respect to the issue of whether or not to eliminate the definition of Level 1 transponders from the MOPS documents. It is the position of SC-209 that we should not remove the definition of the Level 1 transponders from these versions of these MOPS documents because of the amount of work required and the amount of time required to perform such an operation.

4. Agenda Item #4

- 4.1 Mr. Pagano asked Bob Saffell to discuss the Status of Eurocae WG-49 after their meeting in Cologne in November. Bob stepped through the draft minutes of the WG-49 meeting and focused on several points of interest.
- 4.2 Initially, Bob indicated that the Cologne WG-49 meeting was productive, and that there was considerable discussion on the ELS/EHS requirements and test procedures, as well as on the environmental test procedures.
- 4.3 Bob stepped through his notes from the WG-49 meeting and the Working Group noted several actions and made some minor editorial corrections to the draft of DO-181D, Appendix B based on the comments of WG-49.

5. Agenda Item #5

- 5.1 The Working Group continued with the Agenda by going on to Agenda Item #5a with a presentation of Working Paper ModeS-WP04-03 by Gary Furr as the Working Group agreed to progress the review of the changes in the draft of DO-181D, version 1.2 on a change-by-change basis. One issue that we stopped and discussed was the insertion of the phrase "TCAS/ACAS" into the revision of DO-181D. In fact, ACAS is actually equal to TCAS II, but the ICAO SARPs treats the two as equal, and with the inclusion of some of the SARPs material into DO-181D, we have to decide whether we specify the difference or leave it as is. This is part of the issue to be resolved by Bob Saffell and Roland Mallwitz in their respective actions related to the review and suggested changes to any and all sections in both MOPS documents related to TCAS. The decision was made by the Working Group to copy the definition of "ACAS" from the

ICAO SARPs Annex 10, Volume IV, and it was inserted during the discussion into Appendix A, and to further make a reference to the relationship between TCAS and ACAS.

- 5.2 The Working Group continued on with the review of Agenda Item #5b with a presentation of Working Paper ModeS-WP04-04 by Bob Saffell for the purpose of reviewing the harmonization agreements with WG-49 with respect to the environmental test procedures in both DO-181D and ED-73C. The Working Group stepped down through the Working Paper on a page-by-page basis, and reviewed all agreements from the WG-49 Cologne meeting on the environmental test procedures. During the review of the test procedures in ED-73C, §5.4.7.2.e, the Working Group shifted to the review of Working Paper ModeS-WP04-09 as discussed below in 5.4. After the complete review of this Working Paper, it was agreed that Gary Furr could take Working Papers ModeS-WP04-04 and ModeS-WP04-09 and implement all proposed changes from both Working Papers into the working draft of DO-181D for the next review. This action was accomplished after the meeting and will serve as the basis for documents presented to WG-49 for review during their January meeting.
- 5.3 The Working Group began review of Agenda Item #5c with a presentation of Working Paper ModeS-WP04-08 by Gary Furr, which is an update to Working Papers ModeS-WP03-04 and SC209-WP07-09. The Working Paper ModeS-WP04-08 is a more in-depth review of specific changes that need to be made to each of the Figures in either DO-181D or ED-73C in order to make a single set of Figures that will be correct for both documents. This Working Paper had been presented to WG-49 for review during their Cologne meeting, but they were just getting to review it during their Paris meeting on 4+5 December. During the review of this Working Paper, the Working Group received an email from Antoine Herve of WG-49 indicating their subgroup review of this Working Paper, and annotated with their comments on each of the suggested changes down through DO-181D, Figure 2-18. The Working Group then began a detailed review of each of the comments submitted by WG-49 on the suggested Figure changes and some changes were made to the Figures during the discussion, in agreement with comments from WG-49. The WG-49 subgroup comments submitted by Antoine Herve were annotated and will be finalized and returned to WG-49 along with the Visio source files for the Figures in question in order that they might again review the modifications to ensure their agreement. This action was accomplished after the meeting and will serve as the basis for documents presented to WG-49 for review during their January meeting.
- 5.4 The Working Group began review of Agenda Item #5d with a presentation of Working Paper ModeS-WP04-09 by Bob Saffell to look at the test procedure in ED-73C, §5.4.7.2.e. After much discussion and review of the proposed changes to the test procedure by Bob Saffell, SC-209 concluded that the proposed Step 6 of the procedure was not consistent with section 2.2 requirements. The Working Group agreed that there would be an SC-209 response back to WG-49 on this proposal for their January meeting. It was requested that all manufacturers review the proposals in WP04-09 and WP04-04 by 14 December in order that the Co-chairs of SC-209 can discuss the SC-209 position with WG-49 prior to their January meeting. Gary Furr agreed to send out

a Letter (email) to Manufacturers requesting their response to this issue before close of business on 13 December.

6. Agenda Item #6

- 6.1 The Working Group continued with Agenda Item #6a, starting with the review of Working Paper ModeS-WP04-05 by Bob Saffell for the purpose of reviewing changes to the ELS/EHS requirements and test procedures in DO-181D.
- 6.2 The Working Group continued with Agenda Item #6b, with the review of Working Paper ModeS-WP04-06 by Bob Saffell for the purpose of reviewing changes to the ELS/EHS requirements and test procedures in ED-73C.

7. Agenda Item #7

- 7.1 The Working Group continued with the Agenda by going on to Agenda Item #7 with the review of Working Paper ModeS-WP04-07 by Gary Furr and Andy Leone. This Working Paper was a consolidation of the reformatted Appendix B and C as had been agreed to during the SC-209 Working Group #1 Meeting #3. The Working Group stepped through the Appendices with Gary pointing out how the documents were created, and cut and pasted, to produce the Working Paper that is being presented. It was agreed that the FAA Technical Center personnel had previously accepted **Action Item WG1-3-1** to write test procedures to go into DO-181D for the extraction of GICB Registers for ADS-B.

8. Agenda Item #8

- 8.1 The list of open Action Items was reviewed by the Working Group during the meeting and the summary of Action Items that remained open, or were newly recorded as being assigned and accepted during this Meeting follows:

Action Number	Open Action Item Descriptions	Assigned to	Status
7-1	Contact European manufacturers to ask about the side lobe suppression issue of one percent in DO-181C versus ten percent in ED-73C. Can they meet the 1%.	Kevin Hallworth	Pending further input from European Mfg, WG-49 agrees to go to 1%
7-2	Contact European manufacturers to ask whether they provide mutual suppression according to the newly added request in DO-181D, 2.2.11.b.	Kevin Hallworth	
7-3	Rewrite 2.5.4.19 to be consistent with changes made to the Data Link Capability Reporting in 2.2.19.1.13. Also check 2.6.2.3.	Bob Saffell	In Process
7-4	Discuss the issue of "Validation of declared on-the-ground status" with ICAO ASP during the October meeting in Montreal.	Roland Mallwitz	
7-5	Review the environmental sections for Fixed and Variable Direct Data (2.3.2.11.1 & 2.3.2.11.2) to see if referencing 2.6 is appropriate.	Bob Saffell	In process
7-6	Review all of ELS and EHS test procedures to see what should be specific to environmental tests.	Bob Saffell	In process
7-7	Write a test procedure in Procedure #20 for testing 2.2.13.3.1.f.	Tom Pagano	For Feb08

Action Number	Open Action Item Descriptions	Assigned to	Status
7-8	Check §2.4.2.12.3 Step 1 where there is an exclusion for UF=0, 11, 16 and 24, to see if the exclusion applies to all of the steps in that test procedure.	Tom Pagano	For Feb08
7-11	Incorporate the requirements and test procedures for TCAS DO-185B.	Bob Saffell	
WG1-3-1	Write test procedures to go into DO-181D for the extraction of GICB Registers for ADS-B.	Tom Pagano	

9. The Dates and locations of future SC-209 and WG-49 meetings were discussed under Agenda Item #9. The next SC-209 Working Group #1 meeting will be at the Crowne Plaza in Melbourne Florida on 11 – 14 February 2008. Bob Saffell indicated again that we need a headcount by late December for the Melbourne meeting because there is a requirement from the hotel for a specific number of rooms to be occupied by meeting members.

Organization	Dates	Place
WG-49	15 – 17 January 08	Eurocae, Paris
SC-209 WG-1	11 – 14 February 08	Crowne Plaza, Melbourne, Florida

10. The **Working Papers** for all SC-209 Meetings, as well as the Meeting Agendas, Meeting Minutes, Meeting Schedules and proposed modifications to the ATCRBS and Mode-S MOPS will be posted on the web site maintained by Gary Furr at the FAA William J Hughes Technical Center, located at: <http://adsb.tc.faa.gov/SC209.htm>

As reported in the Meeting Summary of Eurocae WG-49, Meeting #6, members of SC-209 may access the WG-49 workspace through the Eurocae web site located at: <http://www.eurocae.org/> Login: WG49 and password: MODE-S

Also, the workspace of Eurocae WG-51 can be accessed by SC-209 members through the same Eurocae web site with: Login: WG51 and password: ADSB